Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) An optimizing planer system comprising:

(a) a control system;

(b) a workpiece feed path;

(c) an optimizing planer operably coupled to the control system, the optimizing planer located along the workpiece feed path and having an entrance, for receipt of a rough workpiece, and an exit, for discharge of an at least partially finished workpiece, the optimizing planer having a cutting element;

(d) a workpiece interrogator situated along the workpiece feed path upstream of the entrance and operably coupled to the control system so to provide the control system with workpiece property information for each workpiece entering the optimizing planer;

(e) the control system constructed to provide the optimizing planer with control information based upon the workpiece property information for each workpiece; and

(f) the optimizing planer constructed to move at least one of the workpiece and the cutting element as the workpiece passes through the optimizing planer according to the control information for each workpiece,

wherein said control system determines an optimized cross-sectional profile for planing by said optimized planer for each workpiece interrogated by said interrogator based upon said workpiece property information so as to optimize said planing of each said workpiece by said optimizing planer,

and wherein said control system adjusts the cross-sectional location of said optimized cross-sectional profile along the length of a workpiece to optimize both workpiece-to-workpiece cross-sectional profiles between adjacent workpieces on said feed path and the cross-sectional profile within a single workpiece.

2. (Previously Presented) An optimizing planer system comprising:

(a) an optimizing planer having an entrance, for receipt of a rough workpiece, and an exit, for discharge of an at least partially finished workpiece, the optimizing planer having a cutting element;

(b) means for interrogating each workpiece entering the optimizing planer and creating workpiece property information therefor;

(c) control system means, operably coupled to the workpiece interrogating means, for providing the optimizing planer with control information based upon the workpiece property information for each workpiece; and

(d) the optimizing planer comprising means for moving at least one of the workpiece and the cutting element as the workpiece passes through the optimizing planer according to the control information for each workpiece,

wherein said control system means determines an optimized cross-sectional profile for planing by said optimized planer for each workpiece interrogated by said means for interrogation based upon said workpiece property information so as to optimize said planing of each said workpiece by said optimizing planer,

and wherein said control system means adjusts the cross-sectional location of said optimized cross-sectional profile along the length of a workpiece to optimize both workpiece-to-workpiece cross-sectional profiles between adjacent workpieces on said feed path and the cross-sectional profile within a single workpiece.

3. (Previously Presented) A method for planer optimization comprising:

(a) feeding a series of workpieces to an optimizing planer;

(b) interrogating each workpiece prior to entering the optimizing planer to formulate workpiece property information for each workpiece;

(c) creating control information for each workpiece from the workpiece property information according to a desired cross-sectional profile along the length of the workpiece;

(d) controlling the cutting operation of the optimizing planer for each workpiece based upon the control information for each workpiece; and

(e) adjusting the location of the desired cross-sectional profile within the workpiece to optimize planing within the workpiece and to optimize planing in workpiece-to-workpiece planing between the workpiece and a next adjacent workpiece in said series of workpieces.

4. (Previously Presented) An optimizing planer system comprising:

(a) a control system;

(b) a workpiece feed path;

(c) an optimizing planer operably coupled to the control system, the optimizing planer located along the workpiece feed path and having an entrance, for receipt of a rough workpiece, and an exit, for discharge of an at least partially finished workpiece, the optimizing planer having a cutting element;

(d) a workpiece interrogator situated along the workpiece feed path upstream of the entrance and operably coupled to the control system so to provide the control system with workpiece property information for each workpiece entering the optimizing planer;

(e) the control system constructed to provide the optimizing planer with control information based upon the workpiece property information for each workpiece; and

(f) the optimizing planer constructed to move at least one of the workpiece, cutting element or guiding element as the workpiece passes through the optimizing planer according to the control information for each workpiece,

wherein said control system determines an optimized cross-sectional profile for planing by said optimized planer for each workpiece interrogated by said interrogator based upon said workpiece property information so as to optimize said planing of each said workpiece by said optimizing planer,

and wherein said control system adjusts the cross-sectional location of said optimized cross-sectional profile along the length of a workpiece to optimize both workpiece-to-workpiece cross-sectional profiles between adjacent workpieces on said feed path and the cross-sectional profile within a single workpiece.

5. (Previously Presented) An optimizing planer system comprising:

(a) an optimizing planer having an entrance, for receipt of a rough workpiece, and an exit, for discharge of an at least partially finished workpiece, the optimizing planer having a cutting element;

(b) means for interrogating each workpiece entering the optimizing planer and creating workpiece property information therefor;

(c) control system means, operably coupled to the workpiece interrogating means, for providing the optimizing planer with control information based upon the workpiece property information for each workpiece; and

(d) the optimizing planer comprising means for moving at least one of the workpiece, the cutting element or the guiding element as the workpiece passes through the optimizing planer according to the control information for each workpiece;

wherein said control system means determines an optimized cross-sectional profile for planing by said optimized planer for each workpiece interrogated by said means for interrogation based upon said workpiece property information so as to optimize said planing of each said workpiece by said optimizing planer,

and wherein said control system means adjusts the cross-sectional location of said optimized cross-sectional profile along the length of a workpiece to optimize both workpiece-to-workpiece cross-sectional profiles between adjacent workpieces on said feed path and the cross-sectional profile within a single workpiece.

6. (Previously Presented) The system of claim 1 wherein said workpiece interrogator includes a plurality of profile and/or defect detectors for collectively detecting the workpiece property information and a compiler for compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

7. (Previously Presented) The system of claim 4 wherein said workpiece interrogator includes a plurality of profile and/or defect detectors for collectively

detecting the workpiece property information and a compiler for compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

8. (Previously Presented) The system of claim 2 wherein said means for interrogating includes a plurality of profile and/or defect detectors for collectively detecting the workpiece property information and a compiler for compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

9. (Previously Presented) The system of claim 5 wherein said means for interrogating includes a plurality of profile and/or defect detectors for collectively detecting the workpiece property information and a compiler for compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

10. (Previously Presented) The system of claim 3 further comprising the step of providing a plurality of profile and/or defect detectors and wherein said interrogating each workpiece further comprises collectively detecting the workpiece property information by said plurality of profile and/or defect detectors and compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

11. (Previously Presented) The system of claim 1 further comprising means within said control system for determining constraints to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the cross-sectional location of said optimized cross-sectional profile.

12. (Previously Presented) The system of claim 4 further comprising means within said control system for determining constraints to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the cross-sectional location of said optimized cross-sectional profile.

13. (Previously Presented) The system of claim 2 further comprising means within said control system means for determining constraints to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the cross-sectional location of said optimized cross-sectional profile.

14. (Previously Presented) The system of claim 5 further comprising means within said control system means for determining constraints to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the cross-sectional location of said optimized cross-sectional profile.

15. (Previously Presented) The system of claim 3 further comprising the step of constraining said adjusting of the location of the desired cross-sectional profile to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the location of the desired cross-sectional profile.

16. (Previously Presented) An optimizing planer system comprising:

(a) a control system;

(b) a workpiece feed path;

(c) an optimizing planer operably coupled to the control system, the optimizing planer located along the workpiece feed path and having an entrance, for receipt of a rough workpiece, and an exit, for discharge of an at least partially finished workpiece, the optimizing planer having a cutting element;

(d) a workpiece interrogator situated along the workpiece feed path upstream of the entrance and operably coupled to the control system so to provide the control

system with workpiece property information for each workpiece entering the optimizing planer;

(e) the control system constructed to provide the optimizing planer with control information based upon the workpiece property information for each workpiece; and

(f) the optimizing planer constructed to move at least one of the workpiece and the cutting element as the workpiece passes through the optimizing planer according to the control information for each workpiece,

and wherein said movement includes relative movement between the workpiece and the cutting element including up-and-down relative movement, pitch relative movement, and twist relative movement.

17. (Previously Presented) The system of claim 16 wherein said relative movement further comprises side-to-side relative movement, and skew relative movement.

18. (Previously Presented) The system of claim 16 wherein said optimizing planer includes a plurality of linear positioners mounted for actuating said relative movement between the workpiece and the cutting element.

19. (Previously Presented) The system of claim 16 wherein said control system determines an optimized cross-sectional profile for planing by said optimized planer for each workpiece interrogated by said interrogator based upon said workpiece property information so as to optimize said planing of each said workpiece by said optimizing planer,

and wherein said control system adjusts the cross-sectional location of said optimized cross-sectional profile along the length of a workpiece to optimize both workpiece-to-workpiece cross-sectional profiles between adjacent workpieces on said feed path and the cross-sectional profile within a single workpiece.

20. (Previously Presented) The system of claim 16 wherein said workpiece interrogator includes a plurality of profile and/or defect detectors for collectively detecting the workpiece property information and a compiler for compiling the property information from said plurality of profile and/or defect detectors into a single workpiece property information profile for each workpiece.

21. (Previously Presented) The system of claim 16 further comprising means within said control system for determining constraints to balance the amount of self-produced defects including twist, bow or snipe produced in the workpiece as a result of said adjusting of the cross-sectional location of said optimized cross-sectional profile.

22. (Withdrawn) A method for planer optimization comprising:

(a) feeding a series of workpieces to an optimizing planer;

(b) interrogating each workpiece prior to entering the optimizing planer to formulate workpiece property information for each workpiece;

(c) creating control information for each workpiece from the workpiece property information according to a desired cross-sectional profile along the length of the workpiece; and

(d) controlling the cutting operation of the optimizing planer for each workpiece based upon the control information for each workpiece and moving at least one of the workpiece and a cutting element as the workpiece passes through the optimizing planer according to the control information for each workpiece so as to include up-and-down relative movement, pitch relative movement, and twist relative movement between the workpiece and the cutting element.

23. (Withdrawn) The method of claim 22 further comprising side-to-side relative movement, and skew relative movement between the workpiece and the cutting element.

24. (Withdrawn) The method of claim 22 further comprising the step of providing a plurality of linear positioners, actuating said relative movement between the workpiece and the cutting element using said linear positioners.

25. (New) The system of claim 1, further comprising a grading scanner situated along the workpiece feed path downstream of the exit of the optimizing planer, the grading scanner for providing feedback to the control system regarding the cross-sectional profile of the at least partially finished workpiece.